claims are believed to be in condition for allowance. Favorable reconsideration is requested.

The Official Action rejects claims 19-23, 25, 26 and 63-80 as obvious based on the combination of EP 0 445 535 to Yamazaki, "Applicant's prior art admissions (APA)" and U.S. Patent No. 4,772,927 to Saito (APA). The Official Action rejects claims 19-23, 25, 26 and 63-80 as obvious based on the combination of U.S. Patent No. 4,894,352 to Lan, Saito and APA. The Applicant respectfully traverses the rejection because the Official Action has not made a *prima facie* case of obviousness.

As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some reason, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some reason to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims. The present independent claims recite "a gate electrode formed over the semiconductor film with the second insulating film interposed therebetween" and "wherein said second insulating film includes halogen at a concentration of $5x10^{20}$ cm^{-3} or less and carbon at a concentration of $5x10^{19}$ cm^{-3} or

less." Also, the present specification discloses that an objective of the present invention, including the claimed concentrations, may relate to problems with a high interfacial level density and poor step coverage. Further, the present specification discloses an advantage to the claimed carbon concentration, i.e. that "in order to lower the interfacial level density of the film, it is desired that the carbon concentration is $1x10^{18}$ cm^{-3} or less." For the reasons provided below, Yamazaki '535 or Lane, APA and Saito, either alone or in combination, do not teach or suggest the above-referenced features of the present invention.

Without any specific references to the prior art in support and without statements which establish the level of ordinary skill in the art at the time of the present invention, the Official Action asserts that the claimed halogen and carbon concentrations are inherent (page 2, Paper No. 20080321). The Applicant respectfully disagrees and traverses the assertions in the Official Action.

During the interview, Examiner Jackson directed the Applicant's representative's attention to the Official Action, page 3, lines 14-18, which states the following: "Applicant would need to prove the applied art insulating layers do not inherently possess the claimed halogen or carbon concentrations for patentability." The Applicant respectfully disagrees and traverses the assertions in the Official Action. The Applicant respectfully submits that such argument reverses the burden of proof in an Official Action, and is thus traversed. Also, this statement appears to demonstrate that the prior art insulating layers do not necessarily contain the claimed halogen or carbon concentrations. As noted in MPEP § 2112, the standard in determining whether a given reference inherently teaches is feature is whether the Official Action has provided a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art references. Ex parte Levy, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Inter. 1990). The Applicant respectfully submits that the present Official Action has not met this burden and that one of ordinary skill in the art at the time of the present invention would not,

upon review of the prior art, necessarily come to the conclusion that the prior art references teach the claimed halogen or carbon concentrations, much less that such concentrations must be present in a second insulating film, as presently claimed.

In the interview, Examiner Jackson conceded that the language in the claims that the second insulating film "includes" halogen and carbon means that at least some carbon and halogen must be present.

The Applicant notes that Lane appears to teach the presence of carbon monoxide and that "the resulting oxide films may contain mobile ions such as carbon ..." (column 1, lines 36-39). Also, Lane appears to teach that "the compressive stress of silicon oxide films ... can be reduced by the addition of small amounts of fluorine-containing compounds such as CF_4 ..." (column 1, lines 36-50). Still further, Lane appears to include numerous disclosures of organic compounds, which appears to be an implicit disclosure of carbon. The title of Lane is "deposition of silicon-containing films using organosilicon compounds and nitrogen trifluoride" (emphasis added). However, Lane is silent as to concentrations of halogen or carbon, much less such concentrations in an insulating film. Lane does not necessarily teach that its example of a silicon oxide film is necessarily used as a second insulating film between a gate electrode and a semiconductor film. Also, it is not clear whether the concern over "the compressive stress of silicon dioxide films" in Lane necessarily relates to the second insulating film of the present claims.

Lane's disclosure of "[t]he use of NF_3 as a reactant may also lower mobile ion concentration and surface-state charge density in the deposited film" appears to relate to "interfacial level density." These disclosures in Lane do not relate to the solution of the present application, which relates to specific concentrations of halogen and carbon in the second insulating film.

The Applicant respectfully submits that APA and Saito do not cure the above-referenced deficiencies in Yamazaki '535 or Lane.

Therefore, the Applicant respectfully submits that Yamazaki '535 or Lane, APA and Saito, either alone or in combination, do not teach or suggest "a gate electrode formed over the semiconductor film with the second insulating film interposed therebetween" and "wherein said second insulating film includes halogen at a concentration of $5x10^{20}$ cm^{-3} or less and carbon at a concentration of $5x10^{19}$ cm^{-3} or less."

Since Yamazaki '535 or Lane, APA and Saito do not teach or suggest all the claim limitations, a *prima facie* case of obviousness cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 103(a) are in order and respectfully requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

Eric J. Robinson
Reg. No. 38,285

Robinson Intellectual Property Law Office, P.C.
PMB 955
21010 Southbank Street
Potomac Falls, Virginia 20165
(571) 434-6789